

Description

Field of the invention

[0001] The present invention relates to a cutting platform for a combine harvester fitted with a crop divider that is pivotable relative to the cutting platform between a forwards projecting operating position and a retracted transport position.

Background of the invention

[0002] Cutting platforms, such as grain and maize harvesting headers or gatherers, on combine harvesters are often provided with dividers at their lateral ends to separate the crop to be gathered from the standing crop. The dividers are generally triangular when viewed from the side and are mounted with their pointed end facing the direction of travel and projecting forwards from the remainder of the cutting platform.

[0003] The width of the cutting platform prevents a combine harvester from being driven along normal roads when it is in its working position. For this reason, it is known to separate the cutting platform from the combine harvester and to transport it on a trailer. When the cutting platform is mounted on a trailer for transportation, the crop divider projects laterally and this both increases the width of the transported load and presents a hazard to other road users.

[0004] It has been proposed to remove the divider completely from the cutting platform and to stack it on the cutting platform during transportation. This is not entirely satisfactory because the header bounces around as the trailer is pulled over uneven ground, which both generates noise and risks damaging the header and/or the divider.

[0005] EP-1 036 495 discloses a crop divider that can pivot relative to a header about a vertical axis so that the divider can be moved to a transport position in which, instead of pointing forwards, it points parallel to the axis of rotation of the header, i.e. at right angles to the direction of travel of the combine harvester.

[0006] DD 128878 shows an alternative solution to the problem in which the divider can pivot about a single axis so that its pointed end can be moved to a retracted transport position in which it faces backwards in the direction of travel.

Object of the invention

[0007] It is not however always possible to mount a divider on a cutting platform in a manner that permits to pivot about a single pivot into a retracted transport position. It is therefore an object of the invention to provide a more versatile way of moving the divider into a retracted transport position.

Summary of the invention

[0008] According to the present invention, there is provided a cutting platform for a combine harvester fitted with a crop divider that is pivotable relative to the cutting platform between a forwards projecting operating position and a retracted transport position, characterised in that the divider is supported on a member that forms part of the cutting platform by means of a link which is secured at one end to the member in a manner to allow the link to pivot relative to the member about a first axis and which is secured at its other end to the divider in a manner to allow the divider to pivot relative to the link about a second axis which is inclined relative to the first axis.

[0009] The member of the cutting platform to which the link is pivotably secured is preferably an arm that can be raised and lowered to enable the height of the divider above the ground during operation to be adjusted.

[0010] Advantageously, the link is pivotable relative to the cutting platform about a generally horizontal first axis and the second axis is perpendicular to the first axis.

[0011] As in DD 128878, the use of an articulated link permits the crop divider to be moved to a transport position in which it points backwards in the direction of travel but enables collision between the divider and the cutting platform to be avoided during its relocation from the operating position to the transport position.

Brief description of the drawings

[0012] The invention will now be described further, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a side view of the front end of a combine harvester fitted with a header having a forwardly projecting crop divider,

Figure 2 is a view of a header mounted for transportation on a trailer with the divider shown in the operating position,

Figure 3 is a view similar to that of Figure 2 showing the divider rotated towards its retracted position,

Figure 4 is a detail of the divider when stowed in its fully retracted position,

Figure 5 is a detail of the divider in its operating position, showing the attachment of the divider to its support arm,

Figure 6 is a detail to a further enlarged scale showing the link that connects the divider to its support arm,

Figure 7 shows the divider in an intermediate position during transition from the operating position to the transport position,

Figure 8 is a schematic side view of the divider in its operating position, and

Figure 9 is a view similar to that of Figure 8 showing

the divider in an intermediate position during transition from the operating position to the transport position.

Description of the preferred embodiment

[0013] Figure 1 shows a combine harvester 10 fitted with a header 12 having a forwardly projecting crop divider 14. The divider 14 is made of sheet metal that is bent into the shape of a cone and its function is to separate the crop to be harvested from the standing crop. The height of the divider 14 above the ground needs to be adjustable and for this reason it is mounted on a support arm 16 that can be raised and lowered. The header shown in Figure 1 is of course only one type of cutting platform and other crop gatherers may be used in its place.

[0014] To transport the header 12 on a road, it is separated from the combine harvester and placed on a trailer 18 as shown in Figure 2. However, as can be seen in Figure 2, if the divider 14 were to be left in its operating position when transported on a trailer, the divider 14 would stick out to one side beyond the remainder of the load and would present a hazard. To avoid this problem, the divider 14 is mounted on the support arm 16 in such a manner that it can be rotated to a retracted position, as shown in Figure 3, in which it points in the opposite direction from its operating position. In the retracted position, as shown in figure 4, the divider 14 can be stowed away in a U-shaped bracket 20 which supports the weight of the divider 14.

[0015] The mounting of the divider 14 on its support arm 16 will now be described by reference to Figures 5 to 9. The support arm 16 is formed of a tubular part 16a which terminates in a fixing bracket 16b. The tubular part 16a is adjustably mounted on the cutting platform to allow the divider 14 to be raised and lowered.

[0016] The fixing bracket 16b is formed as an inverted U-shaped channel that rotatably supports a link 22, which is best seen in Figure 6. The link 22 is pivoted at one end about a bolt 24 which passes through the two limbs of the bracket 16b. The bolt 24 is generally horizontal in all positions of the support arm 16. The opposite end of the link 22 has a bolt 26 which lies at right angles to the bolt 24 and acts as a pivot for the divider 14. The divider 14 is provided along its lower edge with a reinforcement tube 14a and it is the end of the latter tube 14a that is pivotable about the bolt 26.

[0017] In the operating position of the divider 14, shown in Figure 5, the divider 14 is raised so that the reinforcement tube 14a lies between the limbs of the bracket 16b. This prevents the divider from pivoting to the left or right about the bolt 26 (all directions are with reference to the direction of movement of the divider when in operation). Furthermore a manually operated clamp 28 engages a catch plate 30 that projects from the divider 14 to prevent the divider 14 from pivoting about the bolt 24. Thus, in the operating position, the

divider acts as a rigid extension of the support arm 16 and cannot move relative to it.

[0018] To move the divider 14 to its backwards facing transport position, it is not possible just to pivot it about the bolt 26 because it is prevented by the bracket 16b from moving in this manner. Instead, the support arm 16 is raised to provide ground clearance and the clamp 28 is manually released. This now allows the divider 14 to be lowered by hand first into the position shown in Figures 6 and 9 then into the position shown in Figure 7.

[0019] As the divider is lowered, the reinforcement arm 14a separates from the bracket 16b and the pivot surrounding the bolt 26 leaves a recess 16c in one of the limbs of the bracket 16b in which it is accommodated in the operating position of the divider 14. Even in the position of Figures 6 and 9, the divider cannot be rotated about the pivot 26 because its tail would collide with the bracket 16b. Hence the divider must continue to be lowered relative to the support arm 16 until it reaches the position shown in Figure 7. In this position, the pivot axis of the bolt 26 is nearly horizontal and the divider 14 can be rotated about the bolt 26 so that it points upwards without any part of it colliding with the support arm 16.

[0020] After the divider has been pivoted about the bolt 26 to point upwards in this manner, its front end is allowed to drop under its own weight this being accompanied by a rotation of the divider 14 and the link 22 about the bolt 24. The link 22 is retracted into the recess 16c with the reinforcing arm 14a of the divider lying to one side of the bracket 16b. Finally, the divider 14 is lowered into its fully retracted position in which its weight is supported on the bracket 20, which constitutes one form of storage device. The bracket 20 also prevents the divider from pivoting about the bolt 26 when it is in the transport position and it therefore holds the divider 14 neatly against the cutting platform.

[0021] The doubly articulated link 22 can thus be seen to permit the divider 14 to be moved to its retracted position without the divider colliding with the bracket 16b which provides for its position locating in the operating position.

Claims

1. A cutting platform for a combine harvester (10) fitted with a crop divider (14) that is pivotable relative to said cutting platform between a forwards projecting operating position and a retracted transport position, **characterised in that** said divider (14) is supported on a member (16) that forms part of said cutting platform by means of a link (22) which is secured at one end to said member (16) in a manner to allow said link (22) to pivot relative to said member (16) about a first axis (24) and which is secured at its other end to said divider (14) in a manner to allow said divider (14) to pivot relative to said link (22) about a second axis (26) which is inclined rel-

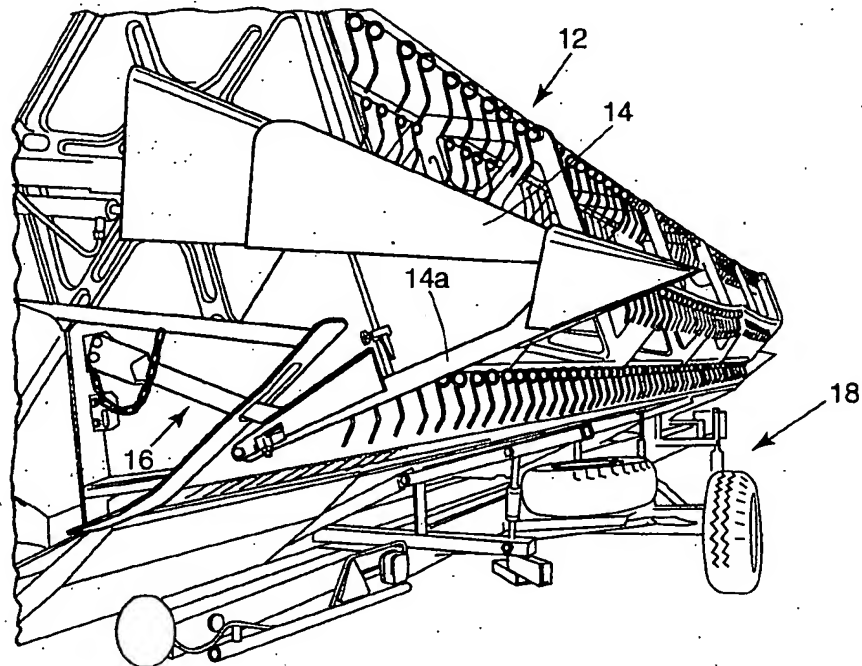
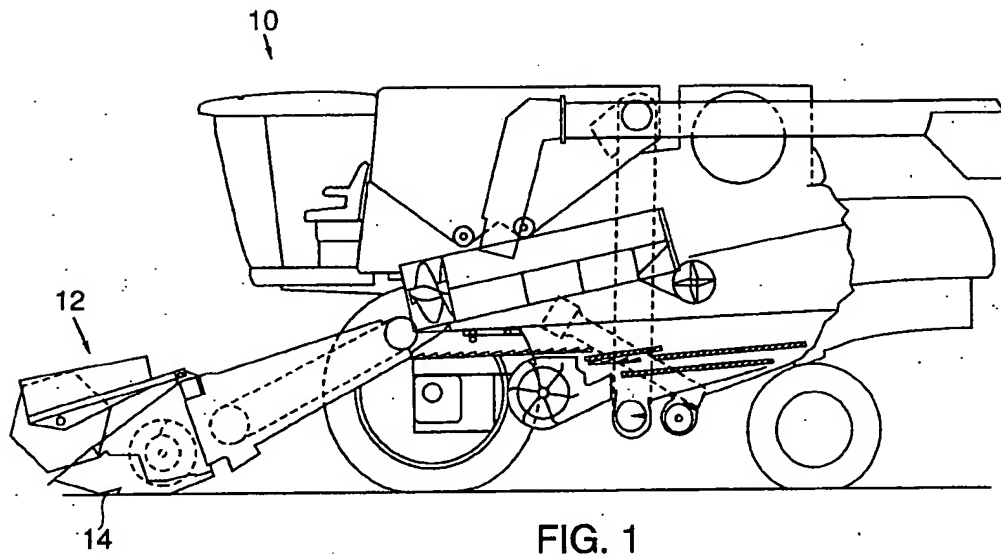
ative to said first axis (24).

2. A cutting platform according to claim 1, **characterised in that** said member of said cutting platform to which said link (22) is pivotably secured is a support arm (16) that can be raised and lowered to enable the height of said divider (14) above the ground during operation to be adjusted. 5
3. A cutting platform according to any of the preceding claims 1 or 2, **characterised in that** said first axis (24) is generally horizontal. 10
4. A cutting platform according to any of the preceding claims, **characterised in that** said second axis (26) is substantially perpendicular to said first axis (24). 15
5. A cutting platform according to any of the preceding claims, **characterised in that** the directions in which said crop divider (14) points when in the operating and transport positions are opposite to one another. 20
6. A cutting platform as claimed in claim 2 or any claim appended thereto, **characterised in that** a clamp (28) is provided for locking said divider (14) relative to said support arm (16) when in its operating position. 25
7. A cutting platform according to any of the preceding claims, **characterised in that** a storing device (20) is provided on said cutting platform to support the weight of said divider (14) in the transport position and to prevent said divider (14) from pivoting about said second axis (26) relative to said link (22). 30 35
8. A cutting platform according to claim 7, **characterised in that** said storing device is a U-shaped bracket (20). 40

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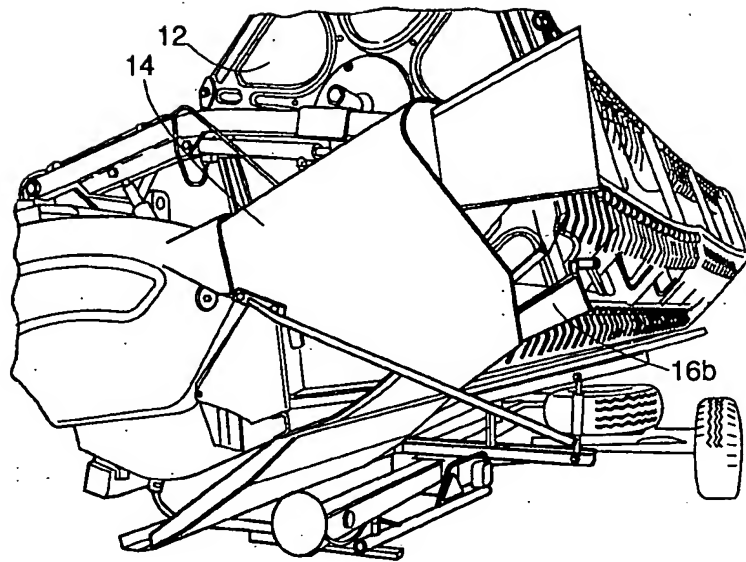


FIG. 3

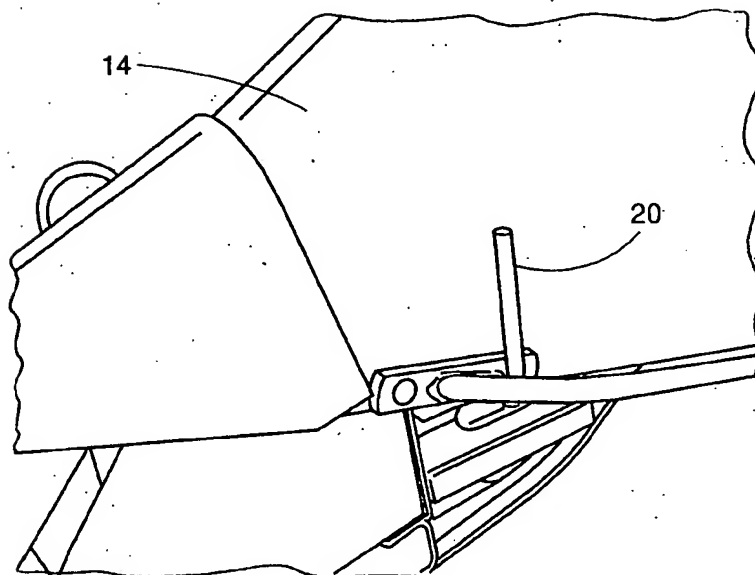


FIG. 4

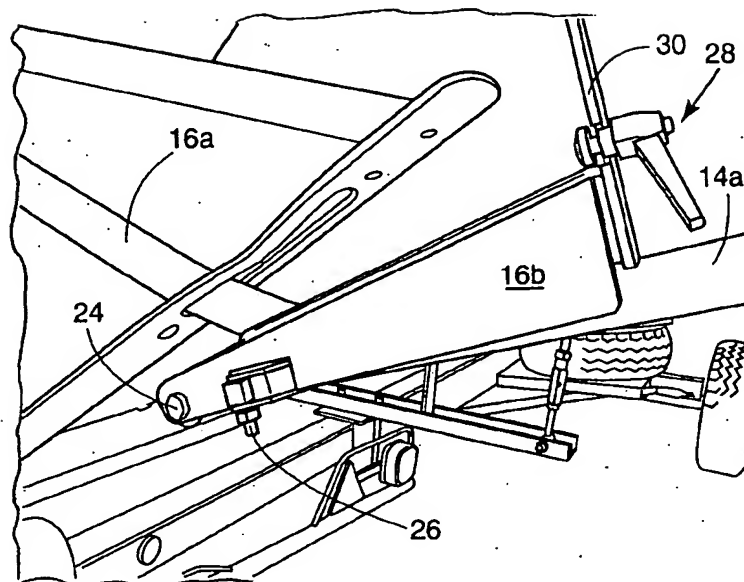


FIG. 5

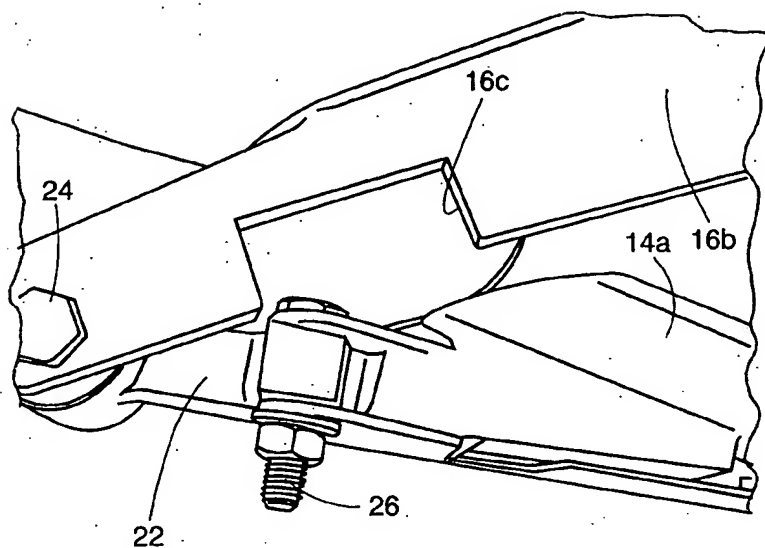


FIG. 6

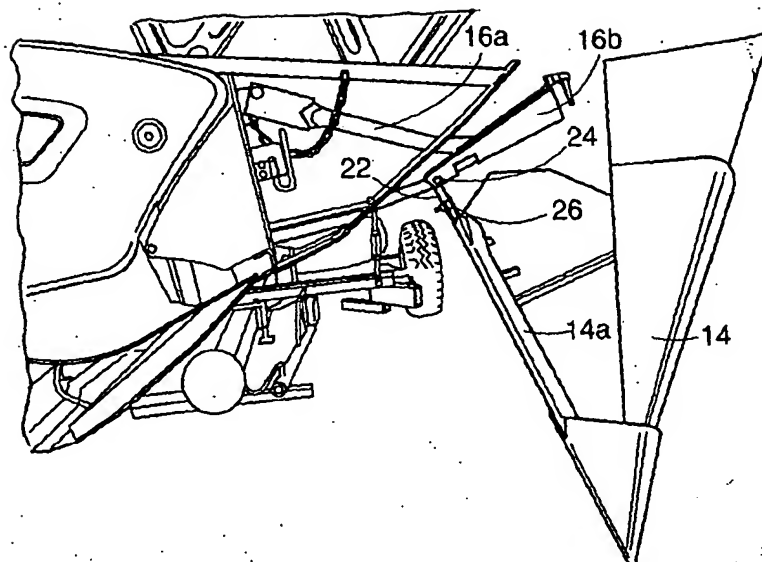


FIG. 7

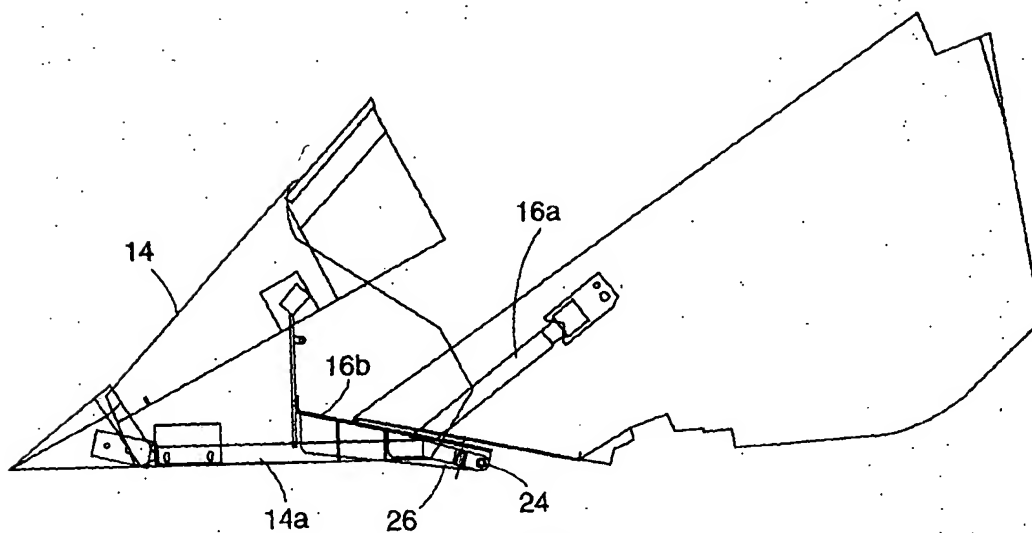


FIG. 8

